

New EMS system in Arizona dramatically improves survival from cardiac arrest

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A new system that sent patients to designated cardiac receiving centers dramatically increased the survival rate of victims of sudden cardiac arrest in Arizona, according to a study published online yesterday in *Annals of Emergency Medicine*.

"We knew lives would be saved if the hospitals implemented the latest cutting edge guidelines for post-[cardiac arrest](#) care and we were able to get cardiac arrest patients to those hospitals, similar to what is done for Level 1 trauma patients," said lead study author Daniel Spaite, MD, Director of EMS Research at the University of Arizona Emergency Medicine Research Center in Phoenix and Tucson and a professor and distinguished chair of emergency medicine at the University of Arizona College of Medicine. "Taking these patients directly to a hospital optimally prepared to treat cardiac arrest gave patients a better chance of survival and of preventing neurologic damage, a common result of these cardiac events."

Under the study, 31 hospitals, serving about 80 percent of the state's population, were designated as cardiac receiving centers between December 2007 and November 2010. Approximately 55 emergency medicine service agencies also participated in the study.

The study shows that the survival rate increased by more than 60 percent during the four-year period of the study, from 2007 to 2010. More importantly, when the results were adjusted for the various factors that significantly impact survival (such as age and how quickly the EMS

system got to the patients after their arrest), the likelihood of surviving an arrest more than doubled. In addition, the likelihood of surviving with good neurological status also more than doubled.

This statewide effort was accomplished through the Save Hearts Arizona Registry and Education-SHARE Program, a partnership involving the Arizona Department of Health Services, the University of Arizona, over 30 hospitals and more than 100 fire departments and EMS agencies. The SHARE Program is part of a network of statewide cardiac resuscitation programs dedicated to improving cardiac arrest survival and working together as the HeartRescue Project.

"We worked closely with the hospitals around the state to implement these Guidelines and then formally recognized the hospitals as Cardiac Receiving Centers (CRCs) ," said Ben Bobrow, MD, Medical Director of the Bureau of Emergency Medicine Services and Trauma System for the Arizona Department of Health Services in Phoenix, Ariz. "We then developed protocols for our EMS agencies to transport post-cardiac arrest patients to those centers. Our overarching goal was to have more cardiac arrest victims leave the hospital in good shape and be able to return to their families and careers. As we suspected, 'regionalizing' the care for these critically-ill patients markedly increased their likelihood of survival and good neurologic outcome."

Dr. Bobrow, who is also a professor of emergency medicine at the University of Arizona College of Medicine-Phoenix and an emergency physician at Maricopa Medical Center, said the study shows that just transporting these patients to the nearest emergency department does not maximize the likelihood of a positive outcome. According to Dr. Bobrow, "Our data show that if the state approaches this as a regionalized system of emergency care delivery, significantly more people survive cardiac arrest and return to their families."

Dr. Spaite commented that dozens of cardiac arrest victims survived as a direct result of this effort in Arizona, and implementing similar regionalized post-cardiac arrest systems of care around the country "could potentially save thousands of lives each year from one of the leading causes of death."

The state began recognizing Cardiac Receiving Centers in 2007, and the following year began allowing EMS agencies to transport arrest victims to those centers as long as the increase in transport time to reach the receiving center was less than 15 minutes.

"This is the first statewide effort of its kind," said Dr. Bobrow. "While there have been individual or small groups of hospitals that have reported on implementing post-arrest care, widespread specialized regionalization, especially on a scope as large as a state, has not been previously reported anywhere in world. What happened in our state was very encouraging and exciting!"

More information: *Annals of Emergency Medicine*
[www.annemergmed.com/article/S0 ... \(14\)00487-9/fulltext](http://www.annemergmed.com/article/S0... (14)00487-9/fulltext)

Provided by American College of Emergency Physicians

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